Deglutition syncope

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Deglutition syncope, also known as swallow syncope, is a neurally mediated reflex syndrome. The common intervention of the heart, esophagus, and stomach by the vagus nerve is central to its pathogenesis, whereby swallowing causes inhibition of the cardiac conduction system. It is most commonly associated with disorders of the esophagus, both organic and functional. Herein we describe the case of a 48-year-old man presenting with transient syncopal episodes that occurred while eating caused by an intrathoracic stomach due to a hiatal hernia.

Elucidating the cause of true syncope requires a careful analysis of a patient's symptoms and clinical findings. Herein we present a case of deglutition syncope, a rare syndrome that is vagally mediated, in which swallowing results in a transient loss of consciousness.

CASE PRESENTATION

A 48-year-old man presented to the emergency department after a true syncopal episode. His only medical history was gastroesophageal reflux, for which he took daily omeprazole. While sitting and having breakfast with his wife, the patient developed sudden nausea and tunnel vision and almost instantly lost consciousness. He regained awareness after approximately 10 seconds and was cognitively intact. He denied any prodromal symptoms of chest pain or palpitations. There were no seizure-like movements, tongue biting, or loss of bowel or bladder control. He never had similar symptoms in the past. His wife called emergency medical services, which brought him to the emergency department. For 2 days prior to the syncopal episode, he had complaints of intermittent epigastric abdominal discomfort intermittently described as "gas-bloating." He denied fever, chills, vomiting, constipation, diarrhea, melena, or bright blood per rectum.

On arrival to the emergency department, the patient was alert and oriented. His temperature was 37.0°C; blood pressure, 130/85 mm Hg; heart rate, 70 beats per minute without evidence of vasodepressor or cardio-inhibitor changes on positional testing; respirations, 16 breaths per minute; and oxygen saturation, 99% on room air. The first and second heart sounds were normal, and no murmur, gallop, click, or rub was heard. The lungs were clear to auscultation. His abdomen was soft, nondistended, with mild epigastric tenderness to palpation, and bowel sounds were present in the chest. There was no guarding or rebound tenderness. The electrocardiogram revealed normal sinus rhythm with normal PR, QRS, and QT intervals.

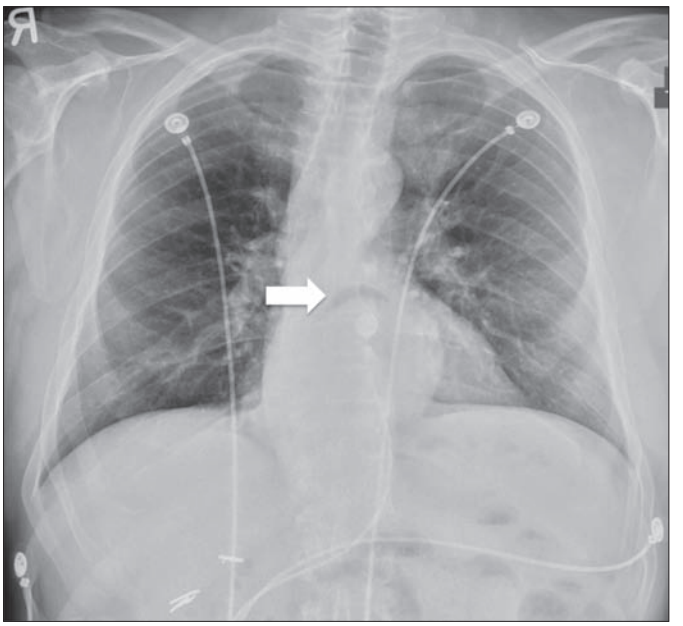

Figure 1. Chest x-ray demonstrating an air-fluid level, raising suspicion of an intrathoracic stomach.

The patient was monitored with continuous telemetry. His chest radiograph showed an air-fluid level in the thoracic cavity suspicious for an intrathoracic stomach *(Figure 1).* His blood count, metabolic panel, cardiac enzymes, amylase, and lipase were normal. Computed tomography of the chest and abdomen disclosed an intrathoracic stomach due to a large hiatal hernia *(Figure 2).*

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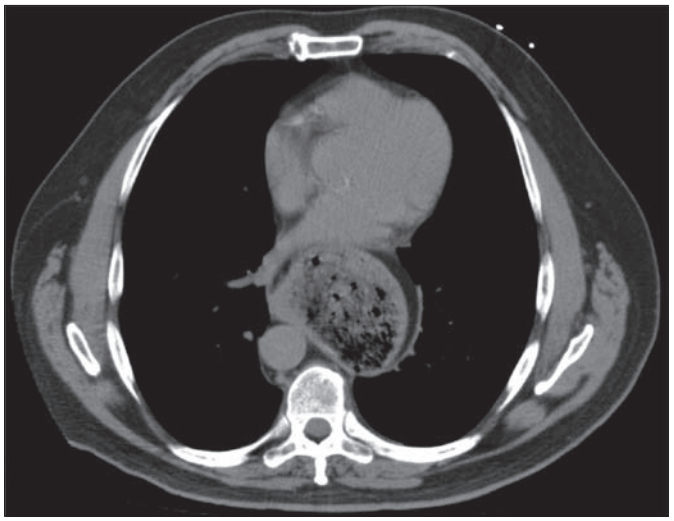

Figure 2. CT of the chest demonstrating an intrathoracic stomach due to a large hiatal hernia.

He was evaluated by general surgery and scheduled for surgical repair the next morning. While waiting in the emergency department for an open hospital bed, he was hungry and was given a sandwich to eat. After swallowing several bites of his sandwich, the patient complained of nausea and tunnel vision, and then the nursing staff observed a true syncopal episode. His telemetry during the observed syncopal episode revealed slowing of his sinus heart rate followed by sinus arrest with a junctional escape rhythm. During the episode, the heart rate nadir was 20 beats per minute *(Figure 3),* and the systolic blood pressure was 60 mm Hg. A nurse who was near the patient started chest compressions. After the second compression, he regained consciousness, and his rhythm reverted back to sinus. Food was withheld thereafter. He underwent successful laparoscopic take down of his stomach and diaphragmatic repair, with complete resolution of the syncopal episodes during follow-up of 1 year.

DISCUSSION

Deglutition syncope, also known as swallow syncope, is a rare trigger of true syncope that can be either neurally mediated or caused by external compression of the left atrium. The neural mechanism occurs as a vagal reflex during deglutition that causes inhibition of the normal cardiac conduction system (1). The pathophysiologic mechanism is the afferent path of the reflex thought to stimulate the vagus or glossopharyngeal nerve. The intense afferent stimulation results in sympathetic inhibition and severe peripheral vasodilatation resulting in bradycardia and hypotension (2).

Spens first described swallow syncope in 1793 (3). The description of swallow syncope typically includes dizziness, lightheadedness, mental confusion, and/or fainting during swallowing of food or liquids. Deglutition of cold water as a cause of syncope has also been described (4). Numerous disorders have been reported with deglutition syncope, including diffuse esophageal spasm (5), hiatal hernia (6), esophageal diverticulum (7), esophageal cancer (8), and achalasia (1) that can result in complete heart block and supraventricular tachycardia (9).

Treatment includes avoidance of the inciting foods/beverages and anticholinergic medications. In our patient, the intrathoracic pressure from a hiatal hernia, precipitated by swallowing, resulted in intense vagal nerve stimulation causing sinus node slowing, followed by sinus arrest and the transient syncopal episodes.

Swallow syncope from external compression of the heart is a different etiology than neurally mediated syncope, yet has the same clinical result of loss of consciousness. The increase in size of the thoracic portion of the stomach with food externally compresses the compliant left atrium, blocking blood flow through the left side of the heart. Oishi et al described a case in 2001 of a thoracic stomach protruding through a large hiatal hernia, resulting in external compression of the left atrium (10). Maekawa et al described a similar case in 2002. In this report, however, the authors confirmed the tamponade effect of the thoracic stomach by a provocation test (11).

True syncope is a complex clinical presentation that requires a broad-based differential diagnosis and a comprehensive evaluation with critical thinking, as evidenced by this case. The identification of bowel sounds in the chest cavity was a clinical clue to the intrathoracic stomach and in conjunction with postprandial syncope should raise a suspicion of deglutition syncope.

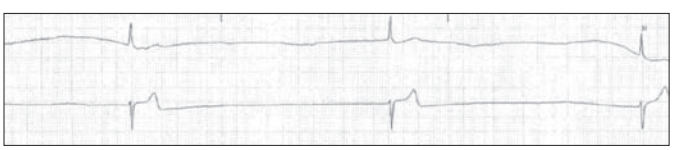

Figure 3. Cardiac rhythm strip demonstrating sinus arrest with junctional escape beats.

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